AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Original) Phosphopeptide comprising an amino acid sequence having the following characteristics:

-2: E or L or V

-1: a hydrophobic amino acid, in particular I or L

0: Y

+1: G

+2: A or T or S

+3: a hydrophobic amino acid or a phenolic amino acid, in particular F or Y

+4: A or G

wherein the numbers represent the amino acid positions in the peptide and the Y in position 0 is a phosphorylated Tyrosine residue.

2. (Original) Phosphopeptide according to claim 1 comprising an amino acid sequence selected from the group consisting of

ELYGSYYA (SEQ ID NO: 1)

EFYGAFA (SEQ ID NO: 2)

EFYGAFG (SEQ ID NO: 3)

AEGELYGSLYA (SEQ ID NO: 4).

3. (Original) Phosphopeptide comprising an amino acid sequence having the following characteristics:

-2: E or P

-1: a hydrophobic amino acid, in particular F

0: Y

+1: G or A

+2: T

+3: a hydrophobic amino acid, in particular Y or F or I or L

+4: G or A

wherein the numbers represent the amino acid positions in the peptide and the Y in position 0 is a phosphorylated Tyrosine residue.

4. (Original) Phosphopeptide according to claim 3 comprising an amino acid sequence selected from the group consisting of

EFYATYG (SEQ ID NO: 5)

EFYGTYG (SEQ ID NO: 6)

EFYATYA (SEQ ID NO: 7)

EFYGTYA (SEQ ID NO: 8).

5. (Original) Phosphopeptide comprising an amino acid sequence having the following characteristics:

-3: an acidic amino acid, in particular E or D

-2: L or E

-1: a hydrophobic amino acid, in particular L

0: Y

+1: A or G

+2: S

+3: Y or L or an acidic amino acid

+4: a phenolic amino acid, in particular Y or F.

wherein the numbers represent the amino acid positions in the peptide and the Y in position 0 is a phosphorylated Tyrosine residue.

6. (Original) Phosphopeptide according to claim 5 comprising the amino acid sequence ELLYGSYY (SEQ ID NO: 9).

7. (Original) Phosphopeptide comprising an amino acid sequence having the following characteristics:

-2: E or P

-1: a hydrophobic amino acid, in particular F or Y or L

0: Y

+1: A

+2: E or Q or H

+3: a hydrophobic amino acid, in particular V or I

+4: G

wherein the numbers represent the amino acid positions in the peptide and the Y in position 0 is a phosphorylated Tyrosine residue.

8. (Original) Phosphopeptide according to claim 7 comprising the amino acid sequence EFYAEVG (SEQ ID NO: 10).

9. (Original) Phosphopeptide comprising an amino acid sequence having the following characteristics:

-2: E and F

-1: a hydrophobic, in particular a phenolic amino acid,

0: Y

+1: A

+2: E

+3: V or I

+4: G

+5: R

wherein the numbers represent the amino acid positions in the peptide and the Y in position 0 is a phosphorylated Tyrosine residue.

10. (Original) Phosphopeptide according to claim 9, wherein the amino acid in position –1 is F.

11. (Original) Phosphopeptide according to claim 9 or 10, comprising the amino acid sequence EFYAEVGR (SEQ ID NO: 11).

12. (Original) Phosphopeptide according to any of the preceding claims, comprising less than at or about 50 amino acids or less than at or about 30 amino acids or less than at or about 20 amino acids or less than at or about 15 amino acids or about 10 amino acids or about 9 amino acids or about 8 amino acids or about 7 amino acids.

13. (Original) Peptidomimetic or non-peptide mimetic designed on the basis of the sequence and/or the structure of a phosphopeptide according to any of the preceding claims, wherein the peptidomimetic is not the peptide RNNEFYA-NH_2, Y being a phosphorylated Tyrosine residue.

14. (Original) Fuctional derivative of a phosphopeptide according to any of the preceding claims, comprising at least one moiety attached to one or more functional groups, which occur as one or more side chains on the amino acid residues, wherein the functional derivative is not the peptide RNNEFYA-NH_2, Y being a phosphorylated Tyrosine residue.

15. (Original) Functional derivative according to claim 14, wherein the moiety is a polyethylene glycol (PEG) moiety.

16. (Original) Phosphopeptide according to any of the preceding claims, wherein the peptide is linked to a cell-penetrating moiety.

17. (Original) Use of a phosphopeptide, peptidomimetic, non-peptide mimetic, or functional derivative according to one of the preceding claims as medicament.

18. (Original) Use of a phosphopeptide according to claim 1 or 2, or a peptidomimetic, a non-peptide mimetic, or functional derivative thereof, for the manufacture of a medicament for treatent and/or prevention of cancer, in particular cancer of the stomach or of the intestine.

19. (Original) Use of a phosphopeptide according to claim 3 or 4, or a peptidomimetic, a non-peptide mimetic, or functional derivative thereof, for the manufacture of a medicament for treatment and/or prevention of diabetes and/or obesity.

20. (Original) Use of a phosphopeptide according to claim 3 or 4, or a peptidomimetic, a non-peptide mimetic, or functional derivative thereof, as suppressor of appetite.

21. (Original) Use of a phosphopeptide according to claim 5 or 6, or a peptidomimetic, a non-peptide mimetic, or functional derivative thereof, for the manufacture of a medicament for treatment and/or prevention of inflammation.

22. (Original) Use of a phosphopeptide according to claim 5 or 6, or a peptidomimetic, a non-peptide mimetic, or functional derivative thereof, for the manufacture of a medicament for treatment and/or prevention of multiple sclerosis.

23. (Original) Use of a phosphopeptide according to claim 5 or 6, or a peptidomimetic, a non-peptide mimetic, or functional derivative thereof, for the manufacture of a medicament for treatment and/or prevention of an angiogenesis-dependent disease, such as a solid cancer or metastatic cancer.

24. (Original) Use of a phosphopeptide according to any of claims 7 to 9, or a peptidomimetic, a non-peptide mimetic, or functional derivative thereof, for the manufacture of a medicament for treatment and/or prevention of an infectious disease, in particular of leishmaniasis.

25. (Original) Pharmaceutical composition comprising one or more of the phosphopeptides, mimentics, or functional derivative as claimed in any of claims 1 to 16, optionally further comprising a pharmaceutically acceptable carrier, excipient, stabilizer, or diluent.

26. (New) A phosphopeptide comprising an amino acid consensus sequence;

wherein said amino acid consensus sequence comprises amino acid positions -2, -1, 0, +1, +2, +3 and +4;

wherein said amino acid positions are defined by reference to amino acid position 0 which is a phosphorylated tyrosine (Y) residue;

wherein the amino acid at position -2 is selected from the group consisting of E, L and V;

wherein the amino acid at position -1 is a hydrophobic amino acid;

wherein the amino acid at position +1 is G;

wherein the amino acid at position +2 is selected from the group consisting of A, T and S;

wherein the amino acid at position +3 is selected from the group consisting of a hydrophobic amino acid and a phenolic amino acid; and

wherein the amino acid at position +4 is selected from the group consisting of A and G.

27. (New) The phosphopeptide of claim 26, wherein the hydrophobic amino acid at position -1 is selected from the group consisting of I and L.

28. (New) The phosphopeptide of claim 26, wherein the amino acid at position +3 is selected from the group consisting of F and Y.

29. (New) The phosphopeptide of claim 26, wherein said phosphopeptide comprises an amino acid sequence selected from the group consisting of ELYGSYYA (SEQ ID NO: 1), EFYGAFA (SEQ ID NO: 2), EFYGAFG (SEQ ID NO: 3), and AEGELYGSLYA (SEQ ID NO: 4).

30. (New) A phosphopeptide comprising an amino acid consensus sequence;

wherein said amino acid consensus sequence comprises amino acid positions -2, -1, 0, +1, +2, +3 and +4;

wherein said amino acid positions are defined by reference to amino acid position 0 which is a phosphorylated tyrosine (Y) residue;

wherein the amino acid at position -2 is selected from the group consisting of E and P;

wherein the amino acid at position -1 is a hydrophobic amino acid;

wherein the amino acid at position +1 is selected from the group consisting of G and A;

wherein the amino acid at position +2 is T;

wherein the amino acid at position +3 is a hydrophobic amino acid; and

wherein the amino acid at position +4 is selected from the group consisting of G and A.

31. (New) The phosphopeptide of claim 30, wherein the hydrophobic amino acid at position -1 is F.

32. (New) The phosphopeptide of claim 30, wherein the hydrophogic amino acid at position +3 is selected from the group consisting of Y, F, I and L.

33. (New) The phosphopeptide of claim 30, wherein said phosphopeptide comprises an amino acid sequence selected from the group consisting of EFYATYG (SEQ ID NO: 5), EFYGTYG (SEQ ID NO: 6), EFYATYA (SEQ ID NO: 7) and EFYGTYA (SEQ ID NO: 8).

34. (New) A phosphopeptide comprising an amino acid consensus sequence;

wherein said amino acid consensus sequence comprises amino acid positions -3, -2, -1, 0, +1, +2, +3 and +4;

wherein said amino acid positions are defined by reference to amino acid position 0 which is a phosphorylated tyrosine (Y) residue;

wherein the amino acid at position -3 is an acidic amino acid;

wherein the amino acid at position -2 is selected from the group consisting of L and E;

wherein the amino acid at position -1 is a hydrophobic amino acid;

wherein the amino acid at position +1 is selected from the group consisting of G and A;

wherein the amino acid at position +2 is S;

wherein the amino acid at position +3 is a selected from the group consisting of Y, L and acidic amino acids; and

wherein the amino acid at position +4 is a phenolic amino acid.

35. (New) The phosphopeptide of claim 34, wherein the acidic amino acid at position -3 is selected from the group consisting of E and D.

36. (New) The phosphopeptide of claim 34, wherein the hydrophobic amino acid at position -1 is L.

37. (New) The phosphopeptide of claim 34, wherein the phenolic amino acid at position -4 is selected from the group consisting of Y and F.

38. (New) The phosphopeptide of claim 34, wherein said phosphopeptide comprises the amino acid sequence ELLYGSYY (SEQ ID NO: 9).

39. (New) A phosphopeptide comprising an amino acid consensus sequence;

wherein said amino acid consensus sequence comprises amino acid positions -3, -2, -1, 0, +1, +2, +3 and +4;

wherein said amino acid positions are defined by reference to amino acid position 0 which is a phosphorylated tyrosine (Y) residue;

wherein the amino acid at position -2 is selected from the group consisting of E and P;

wherein the amino acid at position -1 is a hydrophobic amino acid;

wherein the amino acid at position +1 is A;

wherein the amino acid at position +2 is selected from the group consisting of E, Q and H;

wherein the amino acid at position +3 is a hydrophobic amino acid; and

wherein the amino acid at position +4 is G.

40. (New) The phosphopeptide of claim 39, wherein the hydrophobic amino acid at position -1 is selected from the group consisting of F, Y and L.

41. (New) The phosphopeptide of claim 39, wherein the hydrophobic amino acid at position +3 is selected from the group consisting of V and I.

42. (New) The phosphopeptide of claim 39, wherein said phosphopeptide comprises the amino acid sequence EFYAEVG (SEQ ID NO: 10).

43. (New) A phosphopeptide comprising an amino acid consensus sequence;

wherein said amino acid consensus sequence comprises amino acid positions -3, -2, -1, 0, +1, +2, +3, +4 and +5;

wherein said amino acid positions are defined by reference to amino acid position 0 which is a phosphorylated tyrosine (Y) residue;

wherein the amino acid at position -2 is selected from the group consisting of E and F;

wherein the amino acid at position -1 is a hydrophobic amino acid;

wherein the amino acid at position +1 is A;

wherein the amino acid at position +2 is E;

wherein the amino acid at position +3 is a selected from the group consisting of V and I;
wherein the amino acid at position +4 is G; and
wherein the amino acid at position +5 is R.

44. (New) The phosphopeptide of claim 43, wherein the hydrophobic amino acid at position -1 is a phenolic amino acid.

45. (New) The phosphopeptide of claim 43, wherein the hydrophobic amino acid at position -1 is F.

46. (New) The phosphopeptide of claim 43, wherein said phosphopeptide comprises the amino acid sequence EFYAEVGR (SEQ ID NO: 11).

47. (New) The phosphopeptide of any one of claims 26, 30, 34, 39 or 43, wherein said phosphopeptide comprises: 50 or less amino acids; 30 or less amino acids; 20 or less amino acids; 15 or less amino acids; 10 or less amino acids; 9 or less amino acids; 8 or less amino acids; or 7 or less amino acids.

48. (New) A peptidomimetic or non-peptide mimetic designed on the basis of the sequence and/or the structure of a phosphopeptide of any one of claims 26, 30, 34, 39 or 43, wherein said peptidomimetic does not comprise the amino acid sequence RNNEFYA, and wherein Y is a phosphorylated tyrosine residue.

49. (New) A functional derivative of the phosphopeptide of any one of claims 26, 30, 34, 39 or 43, comprising at least one moiety attached to said phosphopeptide, wherein the functional derivative does not comprise the amino acid sequence RNNEFYA, and wherein Y is a phosphorylated tyrosine residue.

50. (New) The functional derivative of claim 49, wherein said at least one moiety is a polyethylene glycol (PEG) moiety.

51. (New) The phosphopeptide of any one of claims 26, 30, 34, 39 or 43, wherein said phosphopeptide is linked to a cell-penetrating moiety.

52. (New) A method of treating or preventing a PTP mediated disease comprising administering to a patient in need thereof a pharmaceutically effective amount of the phosphopeptide of any one of claims 26, 30, 34, 39 or 43, or a peptidomimetic, a peptide mimetic or a functional derivative of said phosphopeptide.

53. (New) The method of claim 52 wherein said disease is cancer and wherein said phosphopeptide is the phosphopeptide of claim 26.

54. (New) The method of claim 53, wherein said cancer is selected from the group consisting of stomach cancer and intestinal cancer.

55. (New) The method of claim 52, wherein said disease is diabetes and wherein said phosphopeptide is the phosphopeptide of claim 30.

56. (New) The method of claim 52, wherein said disease is obesity and wherein said phosphopeptide is the phosphopeptide of claim 30.

57. (New) A method of suppressing appetite, comprising administering to a subject in need thereof a therapeutically effective amount of the phosphopeptide of claim 30, or a peptidomimetic, non-peptide mimetic or functional derivative of such phosphopeptide.

58. (New) The method of claim 52, wherein said disease is inflammation and wherein said phosphopeptide is the phosphopeptide of claim 34.

59. (New) The method of claim 52, wherein said disease is multiple sclerosis and wherein said phosphopeptide is the phosphopeptide of claim 34.

60. (New) The method of claim 52, wherein said disease is an angiogenesis- dependent disease and wherein said phosphopeptide is the phosphopeptide of claim 34.

61. (New) The method of claim 60, wherein said angiogenesis-dependent disease is cancer.

62. (New) The method of claim 52, wherein said disease is an infectious disease and wherein said phosphopeptide is the phosphopeptide of claim 39 or claim 43.

63. (New) The method of claim 62, wherein said infectious disease is leishmaniasis.

64. (New) A pharmaceutical composition comprising the phosphopeptide of claim 26, 30, 34, 39 or 43, or a peptidomimetic, non-peptide mimetic or functional derivative of such phosphopeptide.

65. (New) The pharmaceutical composition of claim 65, further comprising a pharmaceutically acceptable carrier, excipient, stabilizer, or diluent.